REMARKS/ARGUMENTS

In response to the Restriction Requirement, the applicants confirm their election of the prosecution of Group I (claims 1-7) in the present application. This election does not constitute a waiver of the rights to the inventions claimed in Group II (claims 8-14). In view of the examiner's earlier restriction requirement, the applicants retain the right to present claims 8-14 in a divisional application.

Claims 1, 2, and 3 have herein been amended to more clearly specify that the water-soluble multivalent salt is applied to at least one surface of the cellulosic-based paper substrate while the substrate is being formed on-machine. Support for these amendments is found in the specification (p. 6, lines 11-13, and p. 6, line 21 – p. 7, line 2) and in the examples. It is believed that no new matter has been added to the application via these amendments.

In the Office Action mailed August 29, 2003, claims 1-5 and 7 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 3,215,579 to Hagen. The rejection is respectfully traversed.

In his accompanying 37 C.F.R. §1.132 Declaration, Dr. Fritz G. Paulsen states that one skilled in the art would understand from what is taught in the '579 patent that the "paper web" sized by Hagen is finished paper – not paper which is in the process of being formed on-machine. Indeed, in each of his examples Hagen specifically applies his salt solution to "a roll of standard saturating-type kraft paper" (see: col. 4, line 70-71; col. 5, lines 19-26; col. 5, lines 49-52; and col. 5, lines 69-73).

As noted by Dr. Paulsen, what Hagen teaches to those skilled in the art is the production of a release sheet wherein dry formed paper is subsequently post-treated in a separate sizing operation with an aqueous solution of water-soluble alkaline earth or alkaline earth metal salts. The wet, sized paper is dried, then impregnated throughout with a phenolformaldehyde resin solution, and dried again. The impregnated dried paper is finally coated with an alginic acid salt film (see '579 patent examples). However, there are a number of problems associated with

Hagen's method. Indeed, having recognized these problems the assignee of the '579 patent (the Formica Corporation) subsequently filed applications which matured into U.S. Patent Nos. 4,243,461 and 4,263,073. Both of these patents noted (col. 2, lines 38-57) that the sized release sheet taught by Hagen absorbed a great deal of sizing agent and alginic salt, and that this excessive absorption frequently resulted in inferior release when used to separate decorative laminates undergoing consolidation. Indeed, both the '461 patent (col. 2, lines 50-55) and the '073 patent (col. 2, lines 52-57) specifically state that:

> Large amounts of alginic salt, even when applied in sequential layers does not improve these deficiencies. Only by incorporating a phenolic resin was Hagen able to produce a satisfactory release sheet. The use of such a resin, before sizing, is very costly.

As Dr. Paulsen notes, the applicants' method significantly improves upon the process taught by Hagen and other traditional processes by eliminating the expensive post-treatment sizing operation. In the applicants' method, an aqueous solution of at least one multivalent salt is applied to at least one surface of a cellulosic-based paper substrate while the substrate is being formed on-machine. The substrate is then coated on at least one salt-treated side with a film of a salt of alginic acid and employed as a release sheet in laminate production.

It is well-established that, as the court stated in *In re Bond*, 15 USPQ2d 1321, 1328 (Fed. Cir. 1991):

> For a prior-art reference to anticipate (under 35 U.S.C. §102), every element of the claimed invention must be identically shown in a single reference.

As Hagen does not teach or suggest the application of an aqueous solution of at least one multivalent salt to at least one surface of a cellulosic-based paper substrate while the substrate is being formed on-machine, it is respectfully submitted that that applicants' invention is not anticipated under 35 U.S.C. 102(b).

Claims 1-5 and 7 stand rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 3,215,579 to Hagen in view of U.S. Patent No. 2,229,621 to Bradner. The rejection is respectfully traversed.

As stated above, the Hagen reference does not teach or suggest the application of an aqueous solution of at least one multivalent salt to at least one surface of a cellulosic-based paper substrate while the substrate is being formed on-machine. In paragraph 0016 of the application it is noted that the salts employed in the applicants' method exhibit a multivalent ionic charge. The multivalent charge permits the salt ions to displace ions attached to the acid groups on the alginate so that the salt cross-links the alginate polymer. This action increases the viscosity of the coating, thereby inhibiting the polymer's penetration of the sheet. This improves the holdout of the release coating, which provides enhanced release performance.

As the basis for the rejection the Office Action states (p. 6, lines 4-6) that, "It is well known is the paper making arts to provide a sizing coating to a paper substrate while the paper substrate is still 'on the forming machine' in order to reduce costs". It is certainly known to apply certain types of sizing coatings to a paper substrate while the paper substrate while the paper substrate is still on-machine. However, as stated by Dr. Paulsen in the accompanying Declaration, prior to the applicants' invention it was believed by those skilled in the art that the application of salts as taught by the applicant on-machine to a cellulosic-based paper substrate (such as saturating kraft paper and the like) was not feasible due to absorption problems and other potential adverse effects to both the substrate and the paper machine. It was, therefore, totally unexpected that such salts could be applied on-machine during formation of cellulosic-based paper substrate in such a manner as to ensure that the substrate retained a sufficient amount of salt on its surface to permit effective cross-linking of the alginate. Moreover, the applicants have found that a relatively small application of salts on-machine is effective, as the evaporation of liquid from the surface of the substrate and other conditions act to slow absorption by the substrate of the salt solution.

The Office Action cites Bradner as disclosing a method of sizing a paper substrate with an aqueous coating composition where the sizing is applied during the formation of the substrate on-machine. However, it is respectfully submitted that one skilled in the art would recognize that both the method and the coating compositions taught by Bradner significantly differ from method and the aqueous salt solutions taught by the applicants.

Bradner teaches and claims the use of coating compositions which contain solids in liquid suspension which is applied in such a manner as to form a firm filter cake layer of the solids covering the surface of the paper (see claims 1, 2, 4, 5, 7, 8, and 9). After formation of the filter cake layer substantially all of the liquid coating is wiped off without removing substantially any of the filter cake layer from the paper's surface. The formation of the firm filter cake covering layer is essential to the processes taught by Bradner (see col. 1, lines 33 – 39; col. 2, lines 18 – 27; and col. 9, lines 65-66). Bradner further teaches that his coating composition is usually an aqueous suspension of finely divided mineral filler (which are water-insoluble) with an adhesive (col. 5, lines 29-31).

As noted by Dr. Paulsen, one skilled in the art would recognize that the aqueous solutions of water-soluble multivalent salt(s) taught and claimed by the applicants are significantly different from the liquid solids suspensions taught and claimed by Bradner. Moreover, the formation of a filter cake layer of solids covering the surface of the paper is essential to the method taught by Bradner. In contrast, the method taught by the applicants cannot form such a layer due to the water-solubility of the multivalent salt(s). Furthermore, a skilled artisan would understand that paper having a surface coated with a solids filter cake as taught by Bradner would not be suitable for use in the production of high pressure laminates, as such a coating would adversely affect the resin absorption and saturation properties of the paper.

The Office Action states that "one of the examples of sizing coatings that Bradner lists is a salt coating (calcium carbonate)". Of course, one skilled in the art would recognize that calcium carbonate is not a water-soluble multivalent salt, and is only partially-soluble under acidic conditions. It is believed that the only coating compositions listed by Bradner which contain calcium carbonate are those included in example 1. These compositions contain 15-16%

calcium carbonate (pigment), 21–22% coating clay (pigment), 4% casein (adhesive) dissolved in ammonia water, and 58-60% water. As noted by Dr. Paulsen, one skilled in the art would recognize that calcium carbonate is employed under alkaline conditions as a water-insoluble solid pigment in these coating compositions.

It is respectfully noted that U.S. Patent No. 2,229,621 to Bradner issued on January 21, 1941, and that U.S. Patent No. 3,215,579 to Hagen issued on November 2, 1965 – so that this combination of references has been available to the public for over 37 years. However, as Mr. Hal Y. White states in his accompanying 37 C.F.R. § 1.132 Declaration - and as noted by Dr. Paulsen - there has been a long felt but unsatisfied need for an improved method of releasing laminates, specifically for release sheets having enhanced release characteristics for use in the production of laminates. The method taught by the applicants has satisfied this need. Indeed, as noted by Mr. White, the applicants' invention has achieved significant commercial success, with over 13,000 tons of applicants' release paper being sold by MeadWestvaco Corporation in the calendar year of 2003 for use in the production of laminates.

It is, therefore, respectfully submitted that neither Hagen nor Bradner, either alone or in combination, would teach or suggest the applicants' improved method of releasing laminates to a skilled artisan – much less that the method would be successful.

Claim 6 stands rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 3,215,579 to Hagen (optionally in view of U.S. Patent No. 2,229,621 to Bradner) as applied to claim 1 above, and further in view of U.S. Patent No. 6,171,702 to Malhotra et al. The rejection is respectfully traversed.

The comments noted above concerning Hagen and Bradner are also applicable to the present rejection. Malhotra et al. is cited by Office Action as disclosing "an example of a method of coating paper where the water soluble salt is calcium propionate (column 4, lines 55-61). However, it should be noted that the papers taught by Malhotra et al. are those "capable of absorbing fuser oils particularly suitable for use in electrophotographic systems that employ oil containing fuser rolls that heat and fix the developed image" (col. 3, lines 39-42). These xerographic papers have four layers, wherein the first front side layer in contact with the substrate is an "antistatic hydrophilic layer" comprising (1) a hydrophilic binder, (2) a water

soluble filler, (3) a water insoluble filler, (4) an antistatic component, (5) an optional filler dispersant, and (6) an optional biocide (see claim 1). The water soluble filler of this layer may further be (1) inorganic salts, (2) organic salts, and (3) mixtures thereof (see claim 8) – and may further be calcium propionate (see claim 9).

As noted by Dr. Paulsen, it is respectfully submitted that one skilled in the art would recognize that antistatic hydrophilic layer coating taught by Malhotra et al. significantly differs from the aqueous salt solutions taught by the applicants. Also, it is believed that the xerographic papers taught by Malhotra et al. would not be suitable for use in the production of high pressure laminated materials.

It is, therefore, respectfully submitted that the teachings contained in Hagen, Bradner, and Malhotra et al., either alone or in combination, would not explicitly or implicitly teach or suggest the applicants' improved method of releasing laminates to a skilled artisan – much less that the method would be successful.

It is further respectfully submitted that, in the absence of the applicants' teachings, there would be no suggestion or motivation to one skilled in the art to even attempt to combine the Hagen, Bradner, and Malhotra et al. references – and that such an attempted combination would invariably be the result of improper hindsight analysis. As the court stated in *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (1983):

> To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references or record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.

Therefore, for the reasons stated, it is respectfully submitted that the claimed invention is patentable and that the claims, as amended, are in condition for allowance. Such action by the Examiner is earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

No additional fees (other than for the time extension included herein) are believed to be due in connection with the filing of this amendment and response. Should it be determined that additional fees are due and payable, the Commissioner is authorized to charge any required fees or credit any overpayment to the assignee's Deposit Account No. 23-1160.

Respectfully submitted,

MEADWESTVACO CORPORATION

By _____

Daniel B. Reece IV
Attorney for the Applicant
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Attachment

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No	.:	09/992,902 Confirmation No. 5676
Applicants	:	Paul J. Zuraw, Kerry E. Robinson, Robert C. Streisel, Ronald D. Allen, Jr., and Frank P. Lowry
Filed	:	November 14, 2001
TC/A.U.	:	1733
Examiner	:	Gladys J. Piazza Corcoran
Docket No.	:	CHR 00-77
Customer No.	:	36876
For	:	**Method For Releasing Laminated Materials**

Honorable Commissioner of
Patents and Trademarks
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132

I, Dr. Fritz G. Paulsen, declare as follows:

1. THAT I received my Bachelor of Science in Chemical Engineering from the University of Colorado in 1992 and my Ph. D. in Chemical Engineering from the University of Maine in 1996. From 1997 to present, I have been employed with MeadWestvaco Corporation, Charleston, South Carolina, and currently hold the position of Senior Research Engineer. I have performed research and product development for saturating products employed in the production of laminates.

2. THAT I am familiar with the arts and sciences of the paper production and the production of laminated materials.

3. THAT I am familiar with the above-described patent application and the teachings contained therein.

The applicants teach an improved method of releasing laminates from one another in a heat and pressure consolidated press pack which comprises:

a) arranging a plurality of thermosetting synthetic resin-impregnated fibrous core sheets in superimposed relationship in groups of at least two stacks,

b) separating said stacks from one another with a release sheet comprising a cellulosic-based paper substrate, wherein the improvement comprises the salt-treatment of at least one surface of said substrate during formation of the substrate on-machine via the application to said surface of an aqueous solution comprising at least one water-soluble multivalent salt in an amount sufficient to provide a solids content of about 0.01% to about 3.0% by weight based upon the dry weight of the substrate, and wherein said substrate is coated after formation on at least one salt-treated surface with a film comprising at least one salt of alginic acid,

c) consolidating said stacks of core sheets and said release sheet by the application of heat and pressure thereto, and

separating the resulting laminates from one another at the locus of said release sheet.

The salts employed in the applicants' method exhibit a multivalent ionic charge which permits the salt ions to displace ions attached to the acid groups on the alginate so that the salt cross-links the alginate polymer. This action increases the viscosity of the coating, thereby inhibiting the polymer's penetration of the sheet. This in turn improves the holdout of the release coating, which provides enhanced release performance.

Prior to the applicants' invention it was believed by those skilled in the art that the application of salts as taught by the applicant on-machine to a cellulosic-based paper substrate (such as saturating kraft paper and the like) was not feasible due to absorption problems and other potential adverse effects to both the substrate and the paper machine. It was, therefore, totally unexpected that such salts could be applied on-machine during formation of cellulosic-based paper substrate in such a manner as to ensure that the substrate retained a sufficient amount of salt on its surface to permit effective cross-linking of the alginate.

There has been a long felt but unsatisfied need for an improved method of releasing laminates, specifically for release sheets having enhanced release characteristics for use in the production of laminates. The method taught by the applicants has satisfied this need.

4. THAT I am familiar with referenced U.S. Patent No. 3,215,579 to Hagen.

One skilled in the art would understand from teachings contained in U.S. Patent No. 3,215,579 that the "paper web" sized by Hagen is finished paper – not paper which is in the process of being formed on-machine as taught by the applicants. What Hagen teaches to those skilled in the art is the production of a release sheet wherein dry formed paper is subsequently post-treated in a separate sizing operation with an aqueous solution of water-soluble alkaline earth or alkaline earth metal salts. The wet, sized paper is dried, then impregnated throughout with a phenolformaldehyde resin solution, and dried again. The impregnated dried paper is finally coated with an alginic acid salt film. However, it is recognized by skilled artisans that there are a number of problems associated with Hagen's process. Moreover, the teachings contained in Hagen would not teach or suggest the applicants' method to one skilled in the art.

The method taught by the applicants significantly improves upon the process taught by Hagen and other traditional processes by eliminating the expensive post-treatment sizing operation. In the applicants' method, an aqueous solution of at least one multivalent salt is applied to at least one surface of a cellulosic-based paper substrate while the substrate is being formed on-machine. The substrate is then coated on at least one salt-treated side with a film of a salt of alginic acid and employed as a release sheet in laminate production.

5. THAT I am familiar with referenced U.S. Patent No. No. 2,229,621 to Bradner.

Bradner teaches the use of coating compositions which contain solids in liquid suspension which is applied in such a manner as to form a firm filter cake layer of the solids covering the surface of the paper. After formation of the filter cake layer

substantially all of the liquid coating is wiped off without removing substantially any of the filter cake layer from the paper's surface.

One skilled in the art would recognize that the aqueous solutions of water-soluble multivalent salt(s) taught and claimed by the applicants are significantly different from the liquid solids suspensions taught and claimed by Bradner. Moreover, an essential element of the method taught by Bradner is the formation of a filter cake layer of solids covering the surface of the paper. In contrast, the method taught by the applicants cannot form such a layer due to the water-solubility of the multivalent salt(s). A skilled artisan would further understand that paper having a surface coated with a solids filter cake as taught by Bradner would not be suitable for use in the production of high pressure laminates, as such a coating would adversely affect the resin absorption and saturation properties of the paper.

The coating compositions listed by Bradner in example 1 contain 15-16% calcium carbonate, 21–22% coating clay, 4% casein dissolved in ammonia water, and 58-60% water. One skilled in the art would understand that calcium carbonate is not a water-soluble multivalent salt, and is only partially-soluble under acidic conditions. Moreover, a skilled artisan would recognize that calcium carbonate is employed under alkaline conditions as a water-insoluble solid pigment in these coating compositions.

6. THAT I am familiar with referenced U.S. Patent No. 6,171,702 to Malhotra et al.

The papers taught by Malhotra et al. are xerographic papers which are capable of absorbing fuser oils particularly suitable for use in electrophotographic systems that employ oil containing fuser rolls that heat and fix the developed image. These papers have four layers, including an antistatic hydrophilic layer. One skilled in the art would recognize that antistatic hydrophilic layer coating taught by Malhotra et al. significantly differs from the aqueous salt solutions taught by the applicants.

7. THAT the teachings contained in Hagen, Bradner, and Malhotra et al., either alone or in combination, would not explicitly or implicitly teach or suggest the applicants' improved method of releasing laminates to a skilled artisan.

8. THAT the undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Fritz G. Paulsen

Date: 11/29/2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No	.:	09/992,902 Confirmation No. 5676
Applicants	:	Paul J. Zuraw, Kerry E. Robinson, Robert C. Streisel, Ronald D. Allen, Jr., and Frank P. Lowry
Filed	:	November 14, 2001
TC/A.U.	:	1733
Examiner	:	Gladys J. Piazza Corcoran
Docket No.	:	CHR 00-77
Customer No.	:	36876
For	:	**Method For Releasing Laminated Materials**

Honorable Commissioner of
Patents and Trademarks
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132

I, Hal Y. White, declare as follows:

1. THAT I received a Bachelor of Science degree in Psychology and a Masters of Science degree in Emotional Handicaps from Appalachian State University in Boone, North Carolina. For the past 16 years I have been employed by MeadWestvaco Corporation as a Strategic Accounts Manager. For the past 5 years I have managed the North American sales of MeadWestvaco saturating kraft papers for use in the production of laminated materials. My professional background and experience have given me a good and understanding of the business, arts and sciences of paper production and the production of laminated materials. Accordingly, I believe that I am well qualified to render a professional opinion regarding the commercial success of the applicants' method.

3. THAT I am familiar with the above-described patent application Serial No. 09/992,902 and the teachings contained therein.

The applicants teach an improved method of releasing laminates from one another in a heat and pressure consolidated press pack which comprises:

a) arranging a plurality of thermosetting synthetic resin-impregnated fibrous core sheets in superimposed relationship in groups of at least two stacks,

b) separating said stacks from one another with a release sheet comprising a cellulosic-based paper substrate, wherein the improvement comprises the salt-treatment of at least one surface of said substrate during formation of the substrate on-machine via the application to said surface of an aqueous solution comprising at least one water-soluble multivalent salt in an amount sufficient to provide a solids content of about 0.01% to about 3.0% by weight based upon the dry weight of the substrate, and wherein said substrate is coated after formation on at least one salt-treated surface with a film comprising at least one salt of alginic acid,

c) consolidating said stacks of core sheets and said release sheet by the application of heat and pressure thereto, and

separating the resulting laminates from one another at the locus of said release sheet.

4. THAT there has been a long felt but unsatisfied need for an improved method of releasing laminates, specifically for release sheets having enhanced release characteristics for use in the production of laminates. The method taught by the applicants has satisfied this need.

5. THAT the applicants' invention has achieved significant commercial success. In calendar 2003, over 13,000 tons of applicants' release paper being sold by MeadWestvaco Corporation for use in the production of laminates.

6. THAT these facts demonstrate the commercial success of methods described and claimed in patent application Serial No. 09/992,902.

7. THAT the undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Hal Y. White

Date: 1/29/04